**In the Claims**

Please replace all prior versions, and listings, of claims in the application with the following list of claims:

1. (Currently Amended) A method of injecting liquid under pressure to a patient, the method comprising:

[[a)]] providing liquid under pressure to a patient through a length of tubing, the tubing including a first occlusion system and a regulation system located upstream from the first occlusion system, the first occlusion system and the regulation system defining an intermediate segment having an intermediate pressure, the tubing also including a segment downstream of the first occlusion system having a downstream pressure; and

[[b)]] when injection to the patient is desired to be stopped, closing the regulation system and the first occlusion system to produce a greater intermediate pressure than the downstream pressure, whereby the pressure difference between the intermediate pressure and the downstream pressure prevents the upstream flow of liquid after the injection has stopped.

2. (Currently Amended) The method according to claim 1, further comprising [[c)]] measuring the intermediate pressure in the intermediate segment in the absence of injection to the patient; and [[d)]] providing an output indicative of any leakage from the intermediate segment.

3. (Currently Amended) The method according to claim 2, further comprising [[e)]] activating an alarm in response to an output indicative of a leakage of liquid from the intermediate segment.

4. (Currently Amended) The method according to claim 2, further comprising [[f)]] responsive to the output indicative of a leakage from the intermediate segment, maintaining the intermediate pressure greater than the downstream pressure.

5. (Original) The method according to claim 4, wherein maintaining the intermediate pressure includes increasing the intermediate pressure in the intermediate segment in response to a drop in intermediate pressure.

6. (Original) The method according to claim 4, wherein maintaining the intermediate pressure comprises activating a pump.

7. (Original) The method according to claim 6, wherein maintaining the intermediate pressure comprises activating a pump in the regulation system.

8. (Original) The method according to claim 7, wherein the pump is a peristaltic cassette pump.

9. (Original) The method according to claim 6, wherein the pump includes a syringe and a syringe driver.

10. (Currently Amended) The method according to claim [[2]] 1, wherein the intermediate segment includes a disconnection system having an upstream piece for multiple use and a downstream piece for single use, the method further comprising [[g)]] disconnecting the upstream piece from the downstream piece.

11. (Currently Amended) The method according to claim 10, further comprising [[h)]] decreasing in a controlled manner the intermediate pressure in the intermediate segment prior to disconnecting the upstream piece from the downstream piece to reduce leakage of liquid after disconnection.

12. (Original) The method according to claim 1, further comprising providing an opening pressure of the regulation system greater than an opening pressure of the first occlusion system to prevent any fluids in the intermediate segment from moving upstream through the regulation system.

13. (Original) The method according to claim 1, wherein the regulation system includes a non-return valve.

14. (Original) The method according to claim 1, wherein the regulation system includes a system for flattening the tubing.

15. (Currently Amended) A method of injecting liquid under pressure to a patient, the method comprising:

[[a)]] providing liquid under pressure to a patient through a length of tubing, the tubing including a first occlusion system and a regulation system located upstream from the first occlusion system, the first occlusion system and the regulation system defining an intermediate segment having an intermediate pressure, the tubing also including a segment downstream of the first occlusion system having a downstream pressure;

[[b)]] when injection to the patient is desired to be stopped, closing the regulation system to prevent liquid flow therethrough; and

[[c)]] after closing of the regulation system, closing the first occlusion system to produce a greater intermediate pressure than the downstream pressure.

16. (Currently Amended) The method according to claim 15, further comprising [[d)]] measuring the intermediate pressure in the intermediate segment in the absence of injection to the patient; and [[e)]] providing an output indicative of any leakage from the intermediate segment.

17. (New) The method according to claim 15, further comprising providing an opening pressure of the regulation system greater than an opening pressure of the first occlusion system to prevent any fluids in the intermediate segment from moving upstream through the regulation system.

18. (New) A method of injecting liquid under pressure to a patient, the method comprising:

providing liquid under pressure to a patient through a length of tubing, the tubing including a first occlusion system and a regulation system located upstream from the first occlusion system, the first occlusion system and the regulation system defining an intermediate segment having an intermediate pressure, the tubing also including a segment downstream of the first occlusion system having a downstream pressure; and

when injection to the patient is desired to be stopped, closing the regulation system and the first occlusion system to maintain a greater intermediate pressure than the downstream pressure at least until the patient is disconnected from the tubing.

19. (New) The method according to claim 18, further comprising measuring the intermediate pressure in the intermediate segment in the absence of injection to the patient; and providing an output indicative of any leakage from the intermediate segment.

20. (New) The method according to claim 19, further comprising activating an alarm in response to an output indicative of a leakage of liquid from the intermediate segment.

21. (New) The method according to claim 18, wherein the intermediate segment includes a disconnection system having an upstream piece for multiple use and a downstream piece for single use, the method further comprising disconnecting the upstream piece from the downstream piece.

22. (New) The method according to claim 18, further comprising decreasing in a controlled manner the intermediate pressure in the intermediate segment prior to disconnecting the upstream piece from the downstream piece to reduce leakage of liquid after disconnection.

23. (New) The method according to claim 18, further comprising providing an opening pressure of the regulation system greater than an opening pressure of the first occlusion system to prevent any fluids in the intermediate segment from moving upstream through the regulation system.

24. (New) The method according to claim 18, wherein the intermediate pressure is substantially constant at least until the patient is disconnected from the tubing.